DOCUMENT RESUME

ED 405 869 IR 056 298

AUTHOR Town, J. Stephen
TITLE Benchmarking and Performance Measurement.
PUB DATE [95]
NOTE 8p.; Paper presented at the Northumbria International Conference on Performance Measurement in Libraries and Information Services (1st, Northumberland, England, August 30-September 4, 1995).
PUB TYPE Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Libraries; Cost Effectiveness; Feedback; Foreign Countries; Higher Education; Innovation; Library Administration; Library Collections; Library Cooperation; *Library Services; Library Surveys; *Measurement Techniques; Military Schools; *Organizational Effectiveness; Partnerships in Education; Staff Development; *Total Quality Management; User Satisfaction (Information)
IDENTIFIERS Barriers to Participation; *Benchmarking; *Cranfield University (England); England (Swindon); Quality Indicators; Service Quality; Site Visits

ABSTRACT

This paper defines benchmarking and its relationship to quality management, describes a project which applied the technique in a library context, and explores the relationship between performance measurement and benchmarking. Numerous benchmarking methods contain similar elements: deciding what to benchmark; identifying partners; gathering information; analyzing what has been collected; and implementing improvements. The Library of the Royal Military College of Science (RMCS) at Cranfield University (Shrivenham, Swindon, England) initiated a Total Quality Management (TQM) program to help attain high quality service for customers, control costs, and use optimum pricing to satisfy the interests of sponsors. The study surveyed and conducted site visits to other university libraries which acted as benchmarking partners. The benchmarking exercise measured the following areas: availability of up-to-date stock; unit costs; staff development, ability, and approachability; user experience, education, and feedback; innovation; and learning environment. Knowledge gained from the project and pitfalls that can adversely affect the success of benchmarking activities are discussed. As a result of the benchmarking exercise, the RMCS Library initiated a number of specific service improvements, and gained confidence, reassurance, tangible evidence about the relative quality of its service, and a strong sense of the common issues and concerns within the "industry" of information provision. (Contains 18 references.) (SWC)

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Benchmarking and Performance Measurement

by J. Stephen Town

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Benchmarking and Performance Measurement

J. Stephen Town
Director of Information Services, Cranfield University (Royal Military College of Science), Shrivenham

This paper will attempt to cover three issues:

- A definition of benchmarking and its relationship to quality management
- A description of a project which applied the technique in a library context
- within these an exploration of the relationship between performance measurement and benchmarking

Benchmarking Definitions and Quality Management Context

The word 'benchmark' originated from a surveyor's mark cut to indicate a level for the determination of altitude. In this sense a benchmark is an absolute measure. A distinction should be drawn between this usage and 'benchmarking' as a management technique, in which measurement is primarily comparative. Benchmarking's origins have been linked to the Japanese word 'dantotsu' meaning 'striving for the best of the best', and also to Sun Tzu's Art of War and the aphorism 'if you know your enemy and know yourself, you need not fear the result of a hundred battles'. Modern definitions of benchmarking are sometimes less poetic but more informative: for example Karlof and Ostblom's: 'a continuous systematic process whereby a comparison is made between productivity, quality and practices in your organisation and a chosen similar organisation' (1993). Roger Milliken's pithy but accurate 'stealing shamelessly' is a sharper summary (1991). Xerox were the first company to begin benchmarking as a response to the crisis in their industry produced by the entry of the Japanese into the photocopier market. The Xerox benchmarking template of What? - Who is best at it? - How do we do it? - How do they do it? sums up the process the company adopted (Camp, 1989). Some interest has been shown within the library community and theoretical articles have appeared on benchmarking (Shaughnessy, 1993). Courses have been run in the UK (Library Association) and North America (University of Toronto Faculty of Information Studies), and Muir has produced a series of simple guides for US librarians (1993-1994). No systematic attempts at library benchmarking had apparently been made in the UK until the Royal Military College of Science (RMCS) Library began its project in late 1993.

Four types of benchmarking were originally suggested by Camp (op. cit.):

- 'internal', in which the organisation seeks uniform good practice through internal comparisons
- 'competitive', in which specific processes are compared to competitors in the same industry
- 'functional', in which specific processes are compared against the best at that process (irrespective of industry)
- 'generic', in which all processes or functions are measured against the best.

Four types of benchmarking exercise have been identified (Zairi, 1992):

- 'cost driven', which is used for economic gains
- 'process driven', which is motivated by desire for superior performance
- 'quick dip', which looks for immediate bottom line results, and
- 'competitive', in which true competitive gaps are sought to drive improvement in product or process.

Different authorities suggest a variety of methodologies: Zairi (and Leonard,1994) outlines processes for benchmarking involving from five up to 36 steps. We opted for the 15-step approach described by Oakland (1993), although all the methods contain similar elements: deciding what to benchmark; identifying partners; gathering information; analysing what has been collected; and then implementing improvements. The result is then checked or reviewed and the cycle may be repeated.

Total quality management (TQM) provides a context for benchmarking. Tenner and DeToro (1992) suggest TQM consists of three main elements:

- Customer Focus
- Process Improvement
- Total Involvement

leading to

- Continuous Improvement

Customer Focus can be considered to involve the following activities:

- Identifying Customers
- Understanding Customer Expectations
- Understanding Customers
- Benchmarking

Thus benchmarking is primarily about improving customer focus through seeing how others satisfy their customers. The performance measurement aspects of benchmarking should be viewed as secondary to this aim. Benchmarking can also be seen as a high-level proactive mechanism for improved customer understanding (ibid.):

- Level 1 (Low) Most Reactive
  - Unsolicited complaints
- Level 2 (Mid)
  - Service desks/hotlines
  - Sales data
  - Unstructured surveys
- Level 3 (High) Most Proactive
  - Personal Interviews/Focus Groups
  - Designed Surveys
  - Benchmarking
  - 'Mystery shopper'

Zairi (and Leonard, 1994) suggests that for a benchmarking exercise to be successful the following might have been achieved:

- Impact on customer satisfaction
- Contribute to raising competitive standards
- Create the learning organisation
- Inspiration from best-in-class
- Strengthen weaker processes
- Enhance knowledge pool
- Bring in state-of-the-art practices
- Keep the organisation externally focused
- Extending employees' creative contributions

Cherret (1994) suggests a number of principles to guide a benchmarking exercise:

- Commitment . . willingness to change
- Right reason . . desire to learn and improve
- Right activities . . specific imperatives
- Understanding . . of own processes
- Emulate . . and improve on leaders
- Change culture . . to targets relating to best
- Be ethical . . honest, open exchange with partners

The RMCS Library Benchmarking Project

The Library of the Royal Military College of Science is operated by Cranfield University for the UK Ministry of Defence (MoD) under an overall contract for the academic activity on the Shrivenham site (Town, 1987). As a result of the University's Quality Policy for its Shrivenham campus the Library initiated a Total Quality Management programme in Summer 1993 (Town, 1994). The characteristics of our TQM approach are to use the 'road map' taken from Tenner and DeToro (op. cit.), and to employ a team approach through Quality Improvement Teams (similar to Quality Circles) using a standard process improvement checklist. We also developed a ten-point Quality Policy which defined quality and stressed the importance of staff involvement to the initiative. We were seeking an input of energy and creativity via the initiative rather than an increase in bureaucracy; as a small organisation using our own internal resources we rejected the BS 5750/ISO 9000 approach as insufficiently focused on quality of service and too expensive in resources when set against the possible benefits. The Library had a strong record of excellence in customer care and of innovation in service, and we intended to build on this by taking a more systematic and managed approach to continuous improvement whilst ensuring that all staff were fully involved and effectively led.

Why did we engage in this major project? Our quality policy recognises that on the Shrivenham Campus we operate in an increasingly competitive environment. Thus the pursuit of a quality service recognisable by customers (students and staff) and demonstrable to clients (the MoD and other sponsors) is essential. It is clear that the former will regard high quality of service as more important, but that the latter will be also interested in cost control and optimum pricing. We had some concern at the outset that the existing performance measures or indicators in use in libraries might be inadequate for benchmarking purposes.

The elements of Oakland's 15 Stage Process (op. cit.) are:

- Plan	7 Stages
- Analyse	3 Stages
- Develop	2 Stages
- Improve	1 Stage
- Review	2 Stages

The stages within the planning phase are:

- Select process groups
- Identify best competitor
- Identify benchmarks
- Bring together team
- Decide information and data-collection methodology
- Prepare for visits and interact with target organisations
- Use data-collection methodology

Stage two suggests identifying the best competitor. Shaughnessy points out that 'it is not known which libraries, within the major types, provide the best service, and are therefore able to serve as benchmarks' (op. cit.). Few libraries seem willing to label themselves as 'best' at any particular aspect of their work, even if they think it in private. Information from published statistics and so-called performance indicators do not readily identify best-in-class. For example the CVCP/HEFCE indicators for 'old' UK universities are based solely on expenditure (Committee . .) and provide no information on customer satisfaction, library outputs or outcomes.

We therefore chose to approach 60 libraries in various relevant groups to act as benchmarking partners, in the hope that we would be able to develop a shortlist of about 20. These included: libraries in technological universities; small academic libraries; those that had some claim to excellence, or relevant in the sense of being involved in quality initiatives or active in performance measurement; special libraries, including a number which had been recognised through awards for quality; and a group of academic libraries with whom we already had some relationship which we believed would make up the list should we fall short of our target number.

As a result of our initial approaches 30 libraries agreed to participate. From this we selected a shortlist of 20 (although in the end we were unable to visit all of these) on the basis of their ability to accommodate visits during our data collection period (October to December 1993), their relevance to our situation, and also on geography. In order to meet our timetable we chose a group of university libraries in the M4 corridor, a group in the Midlands, and a group in the North which we could visit in a single 'road-trip' week.

The participants were:

Bath	Aston	Bradford
Bristol	De Montfort	Central Lancashire
West of England	Keele	Huddersfield
South Bank	Leicester	Manchester Business School
Surrey	Loughborough	Northumbria
Thames Valley	Warwick	

Brunel, City and SOAS also completed questionnaires but we were unable to arrange visits within the timescale. Other libraries were also generous in providing relevant information or advice in support of the exercise, particularly London University and the Institute of Development Studies.

The next suggested stage is to identify 'benchmarks' or measures to use. As already mentioned cost and efficiency data is no longer sufficient to measure quality. Oakland suggests that the old financial measures are 'harmful' and 'incompatible with quality improvement measures such as process and throughput times, delivery performance . . . and increases in flexibility, which are first and foremost non-financial' (op. cit.). Zairi suggests that performance measurement 'is not about counting, collecting absolute data, or building league tables' (1994). Shaughnessy (op. cit.) concludes on the basis of Parasuraman, Zeithaml and Berry's (1990) work that academic service quality might be defined in terms of the following characteristics: 'reliability or consistency, timeliness, competence, access, courtesy, communication, credibility . . . and the overall fit between the customer's needs and the service' and that therefore 'the most important and relevant data will be that provided by library users'.

One of the standard measurement methods in TQM is to use a Critical Success Factors (CSFs) approach. We developed CSFs for the library in the early stages of the TQM initiative; these were internally generated by staff but are similar to those developed in other academic libraries active in the quality arena. RMCS Library CSFs are:

- We must provide current, accessible information resources which match user needs
- We must provide cost-effective services which match contract requirements
- We must have well-trained, motivated and approachable staff

- We must have effective communication with users
- We must respond positively to change
- We must provide the right environment for learning

From this list it was possible to develop some possible areas to measure for the benchmarking exercise in relation to each Critical Success Factor:

- Availability of up-to-date stock
- Unit Costs
- Staff Development, Ability and Approachability
- User Experience, Education and Feedback
- Innovation
- Learning Environment

Because of the short timescale and the fact that this was also research into benchmarking as well as an attempt to benchmark, the decision was taken to employ external consultants. We were however committed to involving our own staff at all levels to ensure that the final product was owned by the staff and that long-term links could be made with the target organisations. It was also important to maintain the connection between the benchmarking exercise and the TQM initiative.

The Study Methodology was to gather preliminary data through a questionnaire. The elements of the questionnaire could be related to the CSFs, so that information was sought, for example, on the availability of unit costs, or the degree to which a service was innovative. The immediate feedback from the completed questionnaires was encouraging. It suggested first and foremost that we were dealing with organisations with similar concerns to ours. A number of common themes emerged which provide a snapshot of the concerns of that particular period: the new approach to user surveys, the use of external consultants to generate change, the quest for realistic performance indicators, and the convergence of library and computing services. One negative finding was the lack of availability of unit costs. Some participants claimed that it would be possible to deduce them, but no library regularly collected data in this particular form. An early decision was taken therefore not to pursue this aspect further. The degree of honesty and openness in completing the questionnaire, and indeed throughout the process, was marked. This indicated the general enthusiasm of the partners for using the exercise as an opportunity for learning and sharing experience and data.

The Follow-up visit was designed to elaborate the information provided by the questionnaire, to discuss the general issues of quality, benchmarking and convergence with staff, and to conduct three separate measurement studies. As a result the Consultants, who alone attended all visits, developed a shortlist of those libraries which they considered to be best-in-class for a particular process. These were grouped around four key processes which were based on the CSFs and defined as:

- User Induction and Education
- Information Retrieval
- Information Provision and Delivery
- Facilities Provision

Various constituent factors or sub-processes were recognised within these. Thus we created a list of libraries which we could use as exemplars.

The three measurement studies were designed to try and quantify user-related measures so that comparisons could be made across all the libraries in the study. This would also provide a more rigorous and reproducible basis for identifying best-in-class performance.

The measurement studies were:

- Availability Study
- Unobtrusive Testing of enquiry services or 'Mystery Shopper'
- 'Servqual' type walk-through assessment

Revill suggested that ' . . . to produce more meaningful comparative performance data it is strongly recommended that an availability study should be adopted as a future component of academic libraries performance assessment' (1987). The rationale for this study was that availability and accessibility of materials, its currency and the speed or delays in delivery are critical issues for the user. The study was designed to give a measure of probability that a user would leave a library having located and obtained the books he or she was initially seeking. This required the study team to search for the books on the OPAC, investigate their circulation status and if available locate them on the shelves.

Unobtrusive testing, or 'mystery shopping' to use modern quality jargon, was carried out in those libraries which agreed (16 out of 18). The methodology was to prepare up to three reference enquiries per library and assess the degree of success in dealing with the request. The two main queries were specific in the sense of the tester being aware of the existence of certain information which would satisfy his request. Some difficulties were experienced

because of the degree of security most academic libraries now employ, but in all cases the tester was able to sample the enquiry service and produce a report describing the environment of the reference service, what enquiry or enquiries had been made, and a summary of the outcome.

All those attending a particular visit were asked to score the library visited on a number of qualitative factors. These were subjective impressions of the library which any user might have, and we attempted to cover some of the dimensions suggested in Zeithaml, Parasuraman and Berry's methodology for assessing service quality (op. cit.). These were adapted to relate to the experience of library use and to our critical success factors. The rationale was to assess a realistic spread of aspects of service quality which could be gathered on a 'walk-through' basis and scored on a five-point scale:

- Approachability of staff
- Ability of staff
- Physical appearance of stock
- Signing and guiding
- Library environment
- Ease of use of OPAC

The results were used to rank the participating libraries in relation to our service to provide further evidence of best-in-class performance.

On completion of the exercise each partner library was provided with a written report summarising the findings for their library. The Consultants completed their task with a brief report at the end of 1993, and this is being incorporated into a final full report of the project (Town . . .).

Conclusions

At the outset we were forced to consider how we could claim to be seeking continuous improvement without using what industry seemed to consider to be one of the simplest but most effective tools available. The Consultants suggested that the project had been a first pass which raised more questions than it answered. With the benefit of a longer period to consider the outcome I would state much more positively that benchmarking is essential for any service which might be open to comparison. The RMCS Library benchmarking project has demonstrated that benchmarking is a technique which can be used by libraries and can be applied to any or every aspect of a service. It also suggests that generally libraries seem willing to act as partners. We are most grateful to all the participants in our exercise; benchmarking cannot be done without partners.

DeToro (1995) identifies ten pitfalls which may adversely affect the success of benchmarking exercises:

- Lack of sponsorship
- Wrong people in the team
- Teams not fully understanding their own work
- Teams taking on too much
- Managers failing to understand the necessary commitment
- Focusing on metrics rather than processes
- Benchmarking not part of larger strategy
- Misunderstanding organisational mission, goals and objectives
- Assuming every project requires a visit
- Failure to inspect

The project had strong organisational support from senior management both within and outside the library. Staff involvement in the teams is also critical; using Consultants was essential to meet the timetable and they added a great deal of theoretical knowledge of both libraries and quality management that we would have taken a long time to accumulate. However the project was not as strongly owned by staff as a result and this might have inhibited both take-up of learning and individual commitment to continuing the process through follow-up visits. Whilst staff had clear agendas for the project, it would have been helpful to have been further along the TQM route before commencing benchmarking, with more specific processes defined and mapped. We probably need to focus our benchmarking in future at the sub-process level; that is to choose a functional approach. We should also broaden the partners to include other industries who use similar processes. It might also be said that we took on too much; but the project was conceived partly as an experiment or research on behalf of the library community.

The fifth pitfall concerns performance measurement. Using currently available national performance indicators or statistics would almost certainly result in over-concentration on the metrics, because they do not reveal much detail of the processes involved. Libraries need to develop more measures which relate directly to the user's experience, and to solve the problem of how local satisfaction measures which are not absolute (because they are dependent on local expectations) can be used in

comparisons between different institutions. The development of a UK Library Benchmarking Consortium might help in this respect. In addition libraries need to recognise the concept of the 'capable process' from the user viewpoint, instead of, for example, allowing external suppliers dictate the standards of speed of document supply.

One of the lessons learned is that benchmarking can be done through public sources, and that visits are not necessary in every case. Published statistics can be used for limited comparisons, but the current trend amongst UK academic library staff for seeking best practice is through the various electronic (Mailbase) discussion lists. Whilst the word 'best' is rarely explicitly used, the methodology of seeking partners to solve a particular problem or improve a particular process, collecting data from them, sharing it ethically, and providing feedback on the success of the chosen solution seems to me to be an electronic form of benchmarking.

The benchmarking exercise did trigger a number of specific improvements in our service. During the ensuing year and a half a number of developments and enhancements have taken place as a result of the experience of others. There is still scope for more to be done given the huge amount of information collected. We certainly gained a great deal of confidence, reassurance and tangible evidence about the relative quality of our service from the exercise, and also a strong sense of the common issues and concerns within our 'industry'. A library service which has benchmarked itself against its peers and acts on the information gained will have less concerns about its own performance and can face a future of increasing competition in information provision with a greater degree of confidence.

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